

ON THE GENUS *VIVIANIA* WITH THE DESCRIPTION OF TWO NEW SPECIES FROM TEXAS.
(TACHINIDAE, DIPTERA.)

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The genus *Viviania* Rondani (*Biomyia* Rondani) includes about nine described North American species. These constitute a rather homogeneous and difficult group of muscoid flies, although the three species from Texas, here under consideration, are distinct and readily separable forms. I am indebted to Dr. J. M. Aldrich for the determination of the new species described herein as *angustifrons* and for pointing out that the not uncommon *lachnosternae* Townsend is a synonym of *georgiae* Brauer and Bergenstamm originally described from Georgia. The third local species, which I have represented by only three female specimens, is congeneric with *Viviania* but apparently is not assignable to any described form. It is herein described as *nocturnalis* new species.

Since the original description of *georgiae* Brauer and Bergenstamm is not easily accessible, and that of *lachnosternae* Townsend is based upon a single female specimen, it appears desirable to include a redescription of this species.

Viviania georgiae Brauer and Bergenstamm.

Viviania georgiae BB. Zweifl. d. Kaiserl. Mus., V, 1891, p. 312.

Viviania lachnosternae Tns. Tax. Mus. Flies, Smith. Misc. Coll., LI, 1908, p. 106.

Male: Eyes bare; front narrow and prominent below, at narrowest (before ocelli) 0.17 of the head width, (average of three, 0.18, 0.16, 0.16); one pair of verticals (inner) moderately strong; orbitals none; ocellars present, strongly proclinate, hardly at all divergent; frontals in a single row on either side, lowest ones below middle of second antennal joint, uppermost two reclinate; parafrontals gray pollinose, with scattered short black hairs extending below the frontals; parafacials bare, covered with thick dull gray pollen, nearly twice the width of third antennal joint; face not receding much, long and narrow, ridges rather prominent, bare except shortly above vibrissae; the latter situated the length of second antennal joint or more above the oral margin; antennae not reaching the lowest third of face, wholly reddish-yellow,

third joint rather slender, straight or slightly concave on anterior edge, about twice the length of second; arista yellow, long and very thin on apical half, slightly thickened above base, penultimate joint hardly longer than broad; cheeks about one-third the eye height, gray pollinose, the yellow ground color apparent above; proboscis short, fleshy, labella large; palpi yellow, slender to tip, with black bristly hairs below on apical half; posterior orbits broad below and greatly narrowed toward the vertex, covered with dense gray pollen; occiput with sparse pale gray hairs.

Thorax and scutellum black, densely gray pollinose, pleura tinged with yellow along sutures; mesonotum with five black stripes; the outer broad and interrupted at suture; the intermediate ones ending shortly behind suture; the middle one narrow and less distinct, extending from base of scutellum hardly to the suture. Chaetotaxy: humeral 3; posthumeral 2 (posterior one small); acrostichal 3, 3 (variable); dorso-central 3, 3 (variable); notopleural 2; presutural 2; intraalar 3; supraalar 3; postalar 2; sternopleural 2, 1; pteropleural 1 to 3; scutellum with 4 or 5 laterals (normal 4), apicals none or reduced to fine hairs; a preapical and a discal pair usually present though often asymmetrical; postscutellum normal; infrasquamal hairs black; calypters white with a faint yellow tinge, semitransparent.

Abdomen black, entirely covered with dull dense gray pollen which is tinged with brown on the hind margins of the intermediate segments; a dark median stripe and an irregular blackish spot on either side of third segment above apparent in rear view; first and second segments with one smallish erect median marginal pair of bristles; third with a marginal row of somewhat larger bristles; fourth with irregular discal and marginal rows; intermediate segments without discals, the hairs on the upper surface rather coarse evenly placed and depressed; venter of segments three and four without any modified vestiture; genital segments black, ordinary in size; fifth sternite with a deep U-shaped incision, the narrow inner margins of the lobes slightly reflexed, shining black.

Legs stout, blackish except the basal joints and knees which are yellow; claws and pulvilli moderately elongated; middle tibia with one bristle on the outer front side; hind tibia not ciliated.

Wings normal, hyaline; first posterior cell rather narrowly closed well before wing tip; all veins including costa yellow; third with two to four setules near base, others bare; costal spine short; epaulets yellow.

Female: Similar to male except as follows: front wider, at narrowest (vertex) 0.25 of head width (average of six, 0.23, 0.26, 0.25, 0.25, 0.23, 0.28); the usual two pairs of proclinate orbitals present; outer verticals nearly half as large as inner ones; claws and pulvilli shorter, etc. Ovipositor short and blunt, fitted for depositing macrotype eggs.

Length of male, 7 to 8.5 mm.; of female, 8.5 to 10 mm.

Described from three males and six females collected at College Station, Texas, June and July, 1917-1919, (H. J. Reinhard).

The type locality of this species is Georgia. It also appears to be correctly reported from Mississippi, New Mexico, Illinois, Washington, D. C., and New York. The host relationships are, so far as known, with adults of the genus *Phyllophaga*.

Viviania nocturnalis n. sp.

Female: Like *georgiae*, but much smaller and with black epaulets. Front not noticeably prominent below, 0.22 of head width (average of three, 0.23, 0.20, 0.24); antennae fully two-thirds the length of face, third joint black; arista of moderate length, black; thorax and scutellum as in *georgiae*, but with thinner pollen and the pleura wholly black in ground color; chaetotaxy as in *georgiae*, but the posterior posthumeral is absent, only one pteropleural developed and no preapicals present on scutellum; abdomen black, dorsum with thinner gray pollen, subshining in certain lights, a narrow interrupted median stripe visible in a flat rear view; ovipositor blunt, retracted in tip of abdomen, in one specimen with a large flat whitish egg attached; legs wholly black, otherwise as in *georgiae*; wings as in *georgiae*.

Length, 4.5 to 5 mm.

Type: Female, Cat. No. 42,882, U. S. N. M.

Described from two females collected at College Station, Texas, April 15, 1927, June 26, 1929, at night (H. J. Reinhard); and one female captured May 8, 1929, in light trap by S. E. Jones at College Station, Texas.

This species is nocturnal in habit and has been taken in close association with infestations of *Phyllophaga* spp. These observations may indicate the same general host relations as for *georgiae*. It resembles the latter species closely except in size.

Viviania angustifrons n. sp.

Male: Front at narrowest (before ocelli) 0.14 of head width, (average of four, 0.13, 0.15, 0.14, 0.14); parafrontals

narrow at vertex widening rapidly to base of antennae, densely gray pollinose, with a few short black inconspicuous hairs outside and extending below the frontal rows; median stripe reddish-brown, but slightly narrowed in front of triangle extending on either side to vertex; inner verticals moderately developed, outer ones hairlike; frontal bristles short and rather weak, arranged in two rows extending to middle of second antennal joint, the uppermost pair reclinate and situated about on level with anterior ocellus; ocellars small, strongly proclinate and hardly at all divergent; orbitals none; parafacials bare, covered with dense gray pollen, at narrowest only slightly wider than third antennal joint; face gray pollinose, the yellow ground color apparent at vibrissal angles; ridges somewhat rounded or flattened below, bare except three or four short hairs above vibrissae; the latter situated hardly the length of second antennal joint above the level of oral margin; antennae about three-fourths the length of face, yellow, third joint sometimes slightly infuscated on outer side, about two and one-half times the length of second joint; arista of moderate length and distinctly pubescent, thickened near base which is yellow, apical three-fourths slender and blackish, penultimate joint short; proboscis short, labella fleshy; palpi yellow, rather slender, with a few black hairs beneath and shorter bristles at tips; cheeks about one-third the eye height, covered with thin pollen above through which the yellow ground color is distinctly apparent, below with denser gray pollen and numerous black hairs; occiput sparsely clothed with short black bristles which are intermixed with longer pale hairs on lower extremity; eyes bare.

Thorax gray pollinose, mesonotum with four distinct black stripes interrupted at suture, the outer thickened to triangular spots in front and extending postsuturally for three-fourths the distance to base of scutellum, inner ones narrower joined by a transverse stripe just behind suture and obsolete shortly posterior to anterior dorsocentral bristles; scutellum black (yellow in one specimen) covered with rather dense gray pollen which becomes thinner towards base. Chaetotaxy: acrostichal 2, 3 (anterior one small); dorsocentral 2, 3; humeral 2; posthumeral 1; presutural 1; notopleural 2; intraalar 3; supraalar 3; postalar 2; sternopleural 2, 1 (lower anterior one small); pteropleural 1; scutellum with three lateral and one discal pair, apicals reduced to fine hairs; calypters transparent, tawny, the rims whitish; infrascumal setules black, small and inconspicuous; postscutellum normal.

Abdomen yellow, the narrow hind margin of segments one

and two, apical half of third, and all of fourth darker in color; last three segments entirely covered with whitish pollen above except on an interrupted dark median stripe, on the intermediate segments the pollen fades at the sides and toward the posterior margins which are subshining; bristles on all segments rather weak; first with a median marginal pair; second and third each with marginal rows, no discals; fourth with a discal and marginal row; venter of segments three and four on each side with patches of pale, soft, very short hairs; genitalia small, inner forceps deeply divided but not divergent, tips not narrowed, shining black; outer forceps very thin, pale-yellow, tips broadly rounded and slightly bowed backward; penis short, the thickened distal portion with a small recurved hook at apex; fifth sternite yellow, deeply divided with a U-shaped incision, the lobes with black hairs on the darker inner margins.

Legs slender, without any strong bristles, tarsi black, other joints yellow, more or less infuscated; middle tibia with one bristle on outer front side, hind tibia with three or four short bristles on outer posterior side; claws and pulvilli elongated.

Wings ordinary in form; costa and all veins yellow; fourth with a rounded oblique bend, slightly concave near the tip so that the first posterior cell is narrowly open about the length of small cross vein before the exact wing tip; hind cross vein slightly nearer bend than to small cross vein; first vein bare, third with two or three small hairs near base; costal spine inconspicuous; epaulets black.

Female: Front narrowed before ocelli as in male, 0.16 of head width (average of five, 0.16, 0.16, 0.15, 0.15, 0.16); abdomen distinctly darker and but little or hardly at all yellow in ground color, the tip concealing a blunt egg-laying organ; without the usual orbital bristles and only one pair (inner) verticals developed; palpi larger and thickened apically; calypters white; puvilli less elongated, otherwise as in male.

Length of male, 5 to 7 mm.; of female, 5.5 to 7 mm.

Type: Male, Cat. No. 42,881, U. S. N. M. One male and four female paratypes also deposited in U. S. National Museum.

Described from 6 males and 10 females including type collected at College Station, Texas, April to July, 1917-1929, (H. J. Reinhard); and 2 males collected at Havana, Cuba, (Baker) received from Dr. J. M. Aldrich to whom they are returned.

The distinctly pubescent arista, greatly narrowed front in both sexes, absence of orbitals in the female, and modified vestiture on venter of third and fourth abdominal segments in the male are the principal characters in which the species differs from both *georgiae* and *nocturnalis*. The two males from Havana are somewhat larger and show less yellow on the abdomen but agree closely in other details with the remainder of the type series. The host relations are unknown.

ON THE HETEROPTERA COLLECTED BY GEORGE P. ENGELHARDT IN THE SOUTH AND WEST.

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What few Heteroptera Mr. George P. Engelhardt has collected in his various trips through the South and West during the last three years, he has very amiably handed to me for study. The records here given either extend the known distribution or confirm previous records.

In May, 1927, Mr. Engelhardt was in Texas, at College Station. On the 19th of the month he secured there 4 *Brochymena cariosa* Stål; one *Hymenarcys nervosa* Say; 3 *Mezira lobata* Say. At Brownsville he took 4 *Jadera haematoloma* H. S. and 16 *J. sanguinolenta* Fabr. According to Blatchley, *sanguinolenta* F. and *aeola* Dallas are the same. At any rate, this appears to be quite abundant at Brownsville. At San Antonio, he secured one *Lygaeus kalmii* Stål, typical; and a couple of *Solubea pugnax* Fabr.

While in Florida, he visited Lake Okeechobee on March 28, and secured 1 *Mormidea lugens* Fabr., 2 *Solubea pugnax* Fabr., 3 *Euthochtha galeator* Fabr., 1 *Namacus annulicornis* Stål and 1 *Oncocephalus geniculatus* Stål. At Royal Palm Park, Dr. Blatchley's own preserve, Mr. Engelhardt collected on February 23, 1929, 3 *Proxys punctulatus* P. B., 1 *Euschistus bifibulus* P. B., 2 *Edessa bifida* Say, 3 *Phthia picta* Drury, 3 *Triatoma sanguisuga* Lec., and one *Zelus bilobus* Say. At Marianna, on the 31st of March, he secured one *Thyanta calceata* Say, one *Leptoglossus phyllopus* and one *Zelus exsanguis* Stål.

Of these 22 records, those for Florida give new localities, as follows: *Thyanta calceata*, *Solubea pugnax*, *Proxys punctulatus*, *Euschistus bifibulus*, *Leptoglossus phyllopus*, *Phthia picta*, Na-